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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/813,068

03/31/2004

Jay N. Vizgaitis

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DEPARTMENT OF THE ARMY
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EXAMINER

HARRINGTON, ALICIA M

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

5

Office Action Summary	Application No. 10/813,068	Applicant(s) VIZGAITIS, JAY N.	
	Examiner Alicia M. Harrington	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/31/04, 2/23/05 and 4/4/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 1-12, 15-18 and 20 is/are rejected.
- 7) ☒ Claim(s) 13-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0303</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the information disclosure statement filed on 3/31/04.

Drawings

2. Applicant filed drawings on 2/23/05 and 4/4/05. The drawings appear to be identical. As indicated on the PTO-892 form, the Examiner accepted the drawings filed on 4/4/05. In your response to this action, please clarify why two sets of drawings were filed.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the abstract contains claim language (for example "comprising"). Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,3-8,10-12,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama (US 2002/0105724) in view of Sigler (US 5,114,238).

Regarding claims 1,4,10,20 Sugiyama discloses a dual mode mirror imaging system comprising:

a Cassegrain-type objective assembly having a primary mirror (3) with a hole in its center (see figure 5), and a secondary mirror (4) spaced in front of the primary mirror; and the secondary mirror (4) adapted to receive radio waves and infrared wavelength light reflected from the primary mirror (see figure 5) and to reflect the light back through the hole to a focal plane (see sections 10,19,37), the secondary mirror (4) having one reflecting surface for the radio waves (convex; 4a) and another reflecting surface(convex,4b) for the infrared light,

the pair of reflecting surfaces positioned to change the optical path length between the radio waves and the infrared light so that the radio waves and the infrared light are imaged at the same focal plane without defocusing (see figure 5 and sections 52-57). Sugiyama also recites that radio and infrared/visible is the radiation implemented in the illustrated embodiments but other forms of radiation inclusive of radiation of different wavelengths (see section 19,37,70,75). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a laser wavelength

light and infrared light, since the combination is used in alignment/sighting using telescopic imaging systems and Sugiyama teaches the Cassegrain telescopic system for use with multiple wavelengths of light. Sugiyama further teaches that prior art system include imaging optics (see figure 9) in the hole in the center of the primary optics. However, Sugiyama fails to specifically disclose an embodiment where imager optics disposed in the hole in the center of the primary mirror.

In the same field of endeavor, Sigler discloses an telescope where the light reflected from the a primary mirror (20) to the secondary mirror (Mangin mirror, 21) is then reflected to the hole in the center of the primary mirror via imaging optics (23-27) to the focal plane for the two infrared radiation bands (see col. 2, lines 50-60). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include imaging optics for the purpose of designing lenses to achieve color correction (and other aberrations) in a broad spectral band of useable wavelengths. Regarding claim 3, Sugiyama and Sigler fail to specifically disclose the primary mirror is an aluminum mirror. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aluminum mirror since aluminum is a highly reflective material used in optical reflective surfaces and it is a light weight material.

Regarding claim 5, discussed above in claim 4, Sigler discloses the secondary mirror is Mangin mirror. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sugiyama, as taught by Sigler, since the Mangin mirror is well known to telescopic systems; its multilayered mirror with reflected back surface selective reflective and transmission of light; and would not increase the cost of the design of the system because it's known/available mirror.

Regarding claims 6-7, Sugiyama fails to specifically disclose the secondary mirror is made out of germanium.

In the same field of endeavor, Sigler discloses an telescope where the light reflected from the a primary mirror (30) to the secondary mirror (Mangin mirror, 21- that is back coated with silver) is then reflected to the hole in the center of the primary mirror

via imaging optics (23-27) to the focal plane for the two infrared radiation bands (see col. 2, lines 50-60) where the secondary mirror is made from germanium (see Table 1 and col. 5, lines 25-67). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use germanium for the purpose of forming a mirror that is sensitive/transmissive to infrared radiation.

Regarding claim 8, Sugiyama and Sigler fail to specifically disclose the claimed mirror thickness. Sugiyama and Sigler disclose the claimed invention except for a 2mm thick mirror. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a 2 mm thick mirror, since it has been held that discovering an optimum value of a result effective variable involves only, routine skill in the art. One would have been motivated to use a thin mirror, for the purpose of keeping the design lightweight and compact.

Regarding claims 11, Sugiyama fails to specifically disclose the two of the lenses is made out of zinc selenide.

In the same field of endeavor, Sigler discloses an telescope where the light reflected from the a primary mirror (30) to the secondary mirror (Mangin mirror, 21- that is back coated with silver) is then reflected to the hole in the center of the primary mirror via imaging optics (23-27) to the focal plane for the two infrared radiation bands (see col. 2, lines 50-60) where lenses could be made from zinc selenide (col. 5, lines 25-67). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use zinc selenide for the purpose of forming a mirror that is sensitive/transmissive to infrared radiation. Additionally, it has been held to be within routine skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. Regarding claim 12, Sugiyama and Sigler fail to specifically disclose the three of the lenses are made from gallium arsenide.

However, gallium arsenide is a material sensitive/transmissive to infrared radiation. Further, Sugiyama and Sigler disclose the claimed invention except for gallium arsenide lenses. It would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate gallium arsenide lenses, since it has been held to be within routine skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claims 16-17, Sugiyama fails to specifically disclose the secondary mirror is made out of germanium and primary mirror is an aluminum mirror.

In the same field of endeavor, Sigler discloses an telescope where the light reflected from the a primary mirror (30) to the secondary mirror (Mangin mirror, 21- that is back coated with silver) is then reflected to the hole in the center of the primary mirror via imaging optics (23-27) to the focal plane for the two infrared radiation bands (see col. 2, lines 50-60) where the secondary mirror is made from germanium (see Table 1 and col.5, lines 25-67). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use germanium for the purpose of forming a mirror that is sensitive/transmissive to infrared radiation. However, Sugiyama and Sigler fail to specifically disclose the primary mirror is an aluminum mirror. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aluminum mirror since aluminum is a highly reflective material used in optical reflective surfaces and it is a light weight material.

7. Claims 2,9,15,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama in view of Sigler, further in view of Abel (US 4,411,499).

Regarding claims 2,9,15 and 18, Sugiyama and Sigler fail to specifically disclose an embodiment where the mirrors are aspheric mirrors.

In the same field of endeavor, Abel discloses a Cassegrain telescopic system where the primary and secondary mirrors are aspheric (see col. 4, lines 55-60). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have aspheric mirrors for aiding in aberration and field curvature correction.

Allowable Subject Matter

8. Claim 19 is allowed.

9. Claims 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 19, prior art either taken singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such a manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in the independent claims, which at least include a dual mode mirror imaging system comprising a Cassegrain-type objective assembly having a primary aspheric aluminum mirror, secondary aspheric convex Mangin mirror and imaging optics including two zinc selenide lenses and three gallium arsenide lenses disposed in the hole in the center of the primary mirror, where one of the gallium arsenide lenses is a diffractive lens with a center wavelength of 4.1 microns as claimed.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Whitney et al (US 5,161,051) discloses a simultaneous dual field of view sensor.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia M Harrington
Examiner
Art Unit 2873



AMH